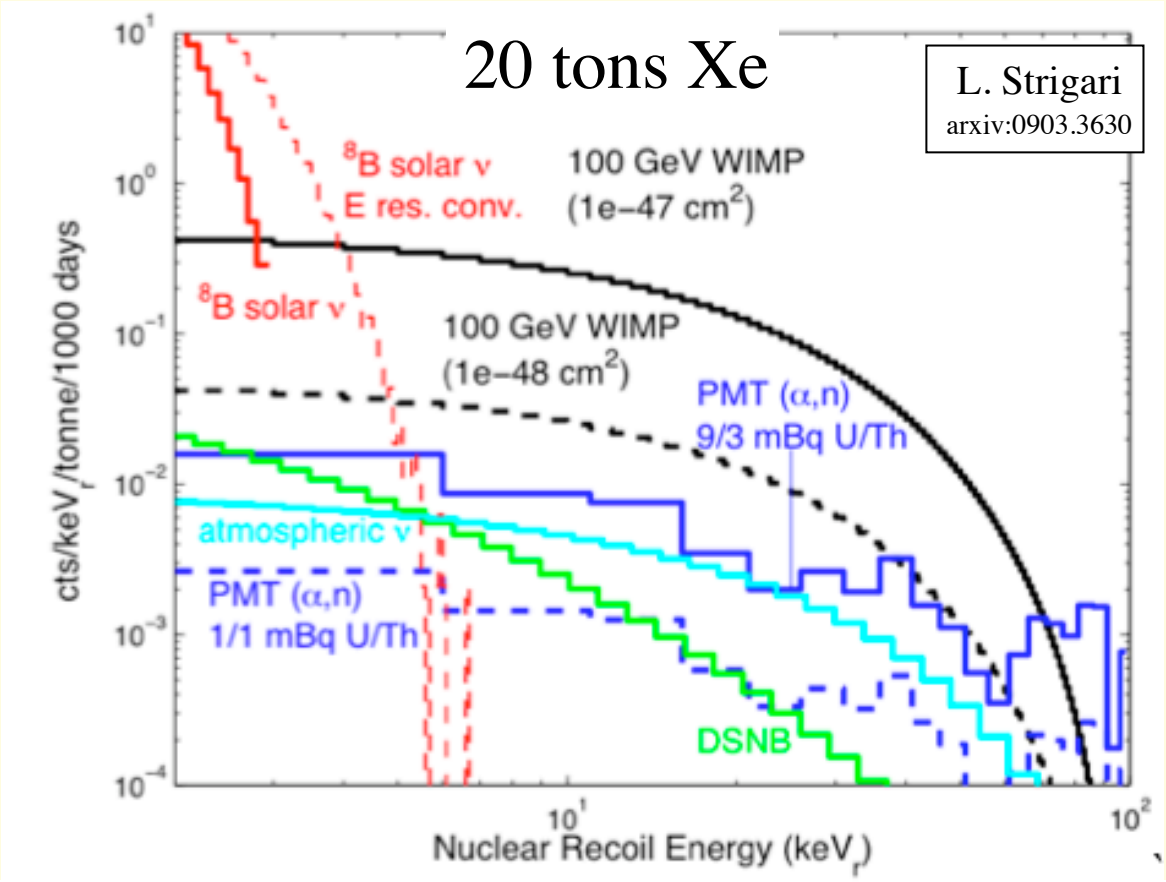
There is an ultimate target mass

- Irreducible background: coherent neutrino scattering of astrophysical neutrinos
  - ^{8}B solar neutrinos
  - Atmospheric neutrinos
  - Diffuse cosmic supernova background
- This limits WIMP sensitivity, independent of target mass.

I believe DUSEL is key to reaching this scale.

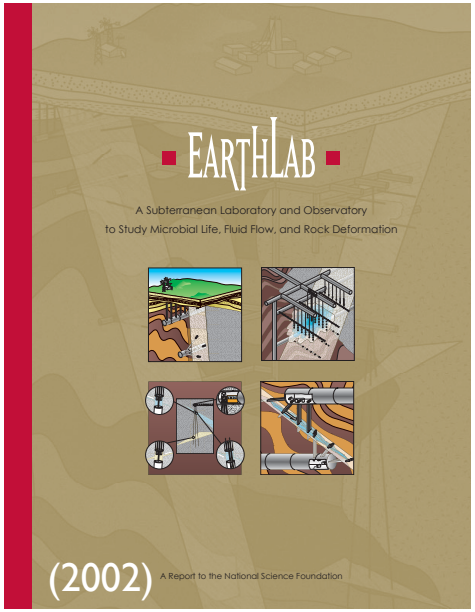


Strong benefit to unified program in US

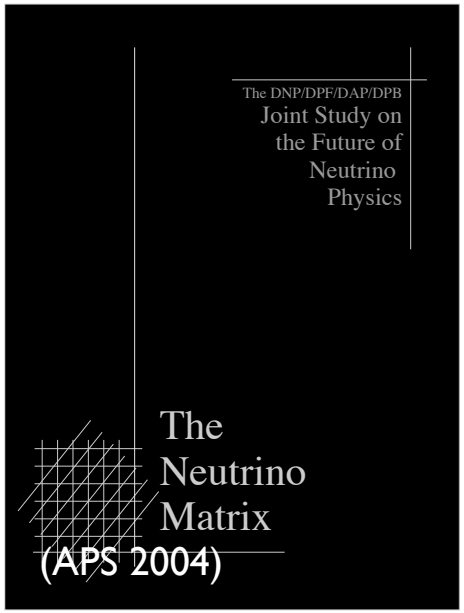
- US has long been the leader in DM. We should maintain this.
- A US lab is probably necessary to field two or even one ultimate-background limited experiments.
- Big benefit to having combined ßß, DM, and long-baseline neutrinos in single facility.

Panels that endorsed DUSEL

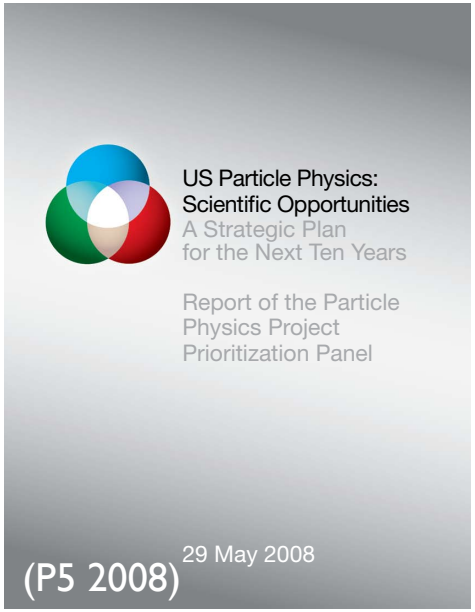
(NSAC 2002)



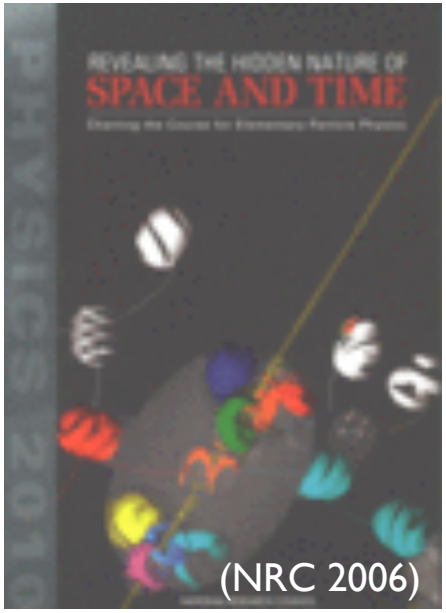
(2002)



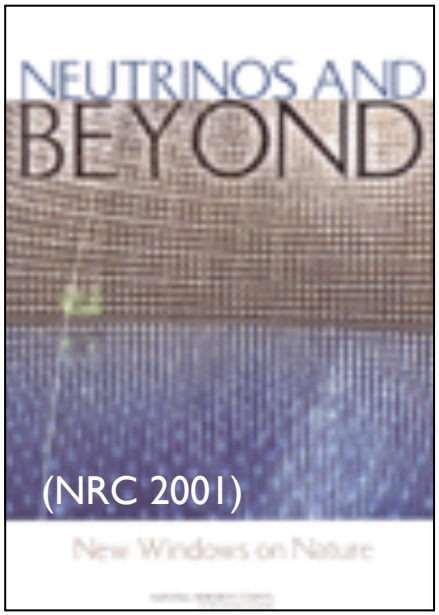
(APS 2004)



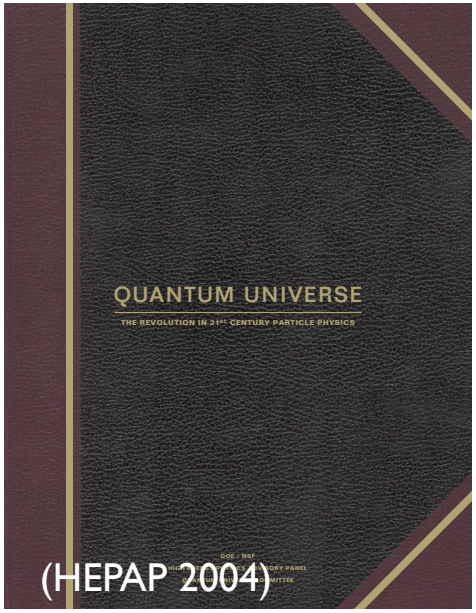
(P5 2008)



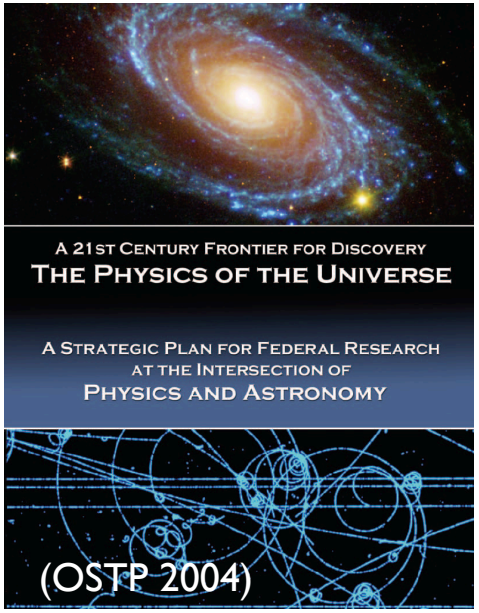
(NRC 2006)



(NRC 2001)



(HEPAP 2004)



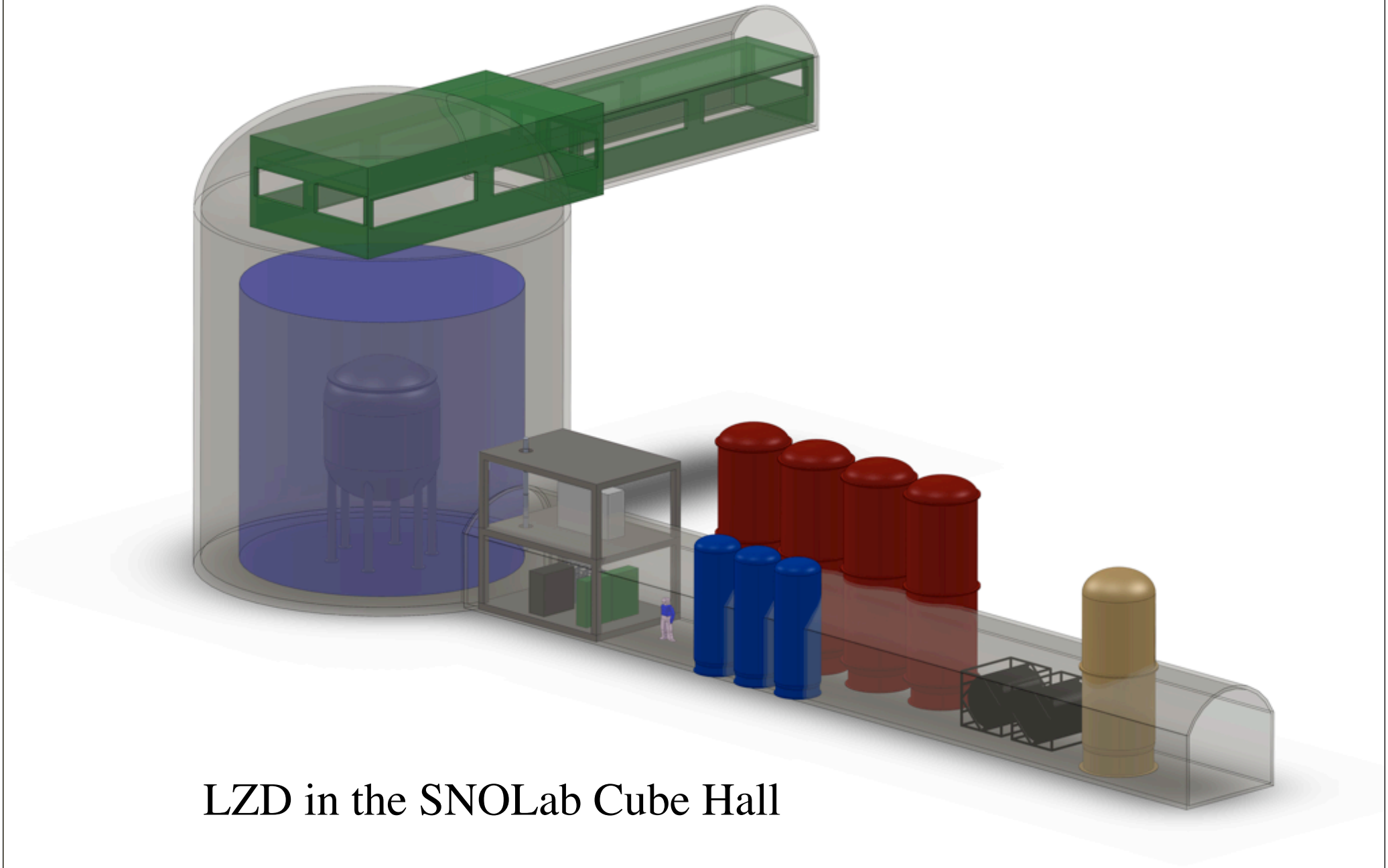
(OSTP 2004)

Early science will go on.

- LUX (dark matter) and Majorana (ßß decay) early science experiments

- Sanford will stay alive, and will carry out early science program while larger questions are addressed.
  - As long as the DOE comes through with $15M committment in FY12

The US program doesn't fit in SNOLab



LZD in the SNOLab Cube Hall